

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/25272

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B29C 47/00; D01D 5/12; D01F 8/04  
US CL : 264/108,177.2,172.12; 425/66,

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 264/108,177.2,172.12; 425/66,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Science Direct, search terms: carbon nanotube, fiber

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Thostenson, E.T and T.-W. Chou, Aligned multi-wall carbon nanotube-reinforced composites: processing and mechanical characterization, Journal of Physics D: Applied Physics, Vol. 35 (2002) L77-L80, especially page L78 and L79, left column.	1,2,4,5,7-12,15-18
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Y		3,6,13-14
X	Haggenmueller, R., H.H. Gommans, A.G. Rinzler, J.E. Fischer, K.I. Winey, Aligned single-wall carbon nanotubes in composites by melt processing methods, Chemical Physics Letters, 330 (2000) pages 219-225, especially Method 2 on pages 220-222.	15-17
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Y		1-14,18,19
Y	US 5,993,922 A (Babrowicz) 30 November 1999 (30.11.1999), Figure 1 and column 5, lines 45-55.	1-14,18,19
Y	US 2002/0058780 A1 (Moses) 16 May 2002 (16.05.2002), page 3, examples 4-6	3,13
Y	Sinnott, S.B., O.A. Shenderova, C.T. White, D.W. Brenner, Mechanical Properties of Nanotube Fibers and Composites Determined from Theoretical Calculations and Simulations, Carbon, 36 (1-2), (1998) pg 1-9, especially Figure 1.	19

<input checked="" type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

22 December 2004 (22.12.2004)

Date of mailing of the international search report

**03 JAN 2005**

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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Kumar, S., H. Doshi, M. Srinivasarao, J.O. Park, D.A. Schiraldi, Fibers from polypropylene/nano carbon fiber composites, <i>Polymer</i> , 43 (2002) 1701-1703, especially page 1702.	1-19
A	Andrews, R., D. Jacques, A.M. Rao, T. Rantell, F.. Derbyshire, Y. Chen, J. Chen, R.C. Haddon, Nanotube composite carbon fibers, <i>Applied Physics Letters</i> , 75 (9), (1999) 1329-1331, especially Figure 1 and page 1330, left column.	1-19
A	Kinloch, I.A., S.A. Roberts, A.H. Windle, A rheological study of concentrated aqueous nanotube dispersions, <i>Polymer</i> , 43 (2002) 7483-7491, especially page 7490, left column.	1-19
A	US 2002/0113335 A1 (Lobovsky) 22 August 2002 (22.08.2002), Examples 1 and 5.	1-19